Mental Health Services in Medicaid, 1999

U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES
Substance Abuse and Mental Health Services Administration
Center for Mental Health Services
www.samhsa.gov

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BACKGROUND AND TABLE DESCRIPTIONS

The statistical tables in this document focus on the use of Medicaid services by beneficiaries with a mental health (MH) diagnosis in each State and throughout the nation in 1999 (the most recent year for which data were available when the tables were prepared). The tables, which are based on eligibility data and data from fee-for-service (FFS) claims,[1] also compare the characteristics and some service use of beneficiaries with and without MH diagnoses. The tables build on methodologies originally developed for selected States from 1986 through 1995 (Buck and Miller 2002; Buck, Miller, and Bae 2000a, 2000b, 2000c, 2000d). Each set of tables has a cover sheet that summarizes Medicaid data quality and completeness issues in order to help users draw appropriate conclusions from the information provided.

This introduction covers the following:

- Project Impetus
  - Prior related work
  - Description of the data files on which the tables are based
- How the mental health population was identified
- Some overall guides for using the tables
  - A brief description of the content of each of the nine tables
  - Some examples from the national summary tables
- Technical notes that define the key terms and concepts associated with the tables
  - Definition of Key Terms and Concepts
  - Common Themes from the State Data Quality and Completeness Cover Pages
  - State-by-State Data Quality and Completeness Scores
  - Basis of Scoring
- Technical appendices showing the specific drugs included as psychotropics and detailed data quality and completeness scores for all states

[1] FFS claims are reasonably complete and reliable because Medicaid does not pay for a service in the FFS system unless a provider submits an accurate claim for that service. In capitated managed care programs, by contrast, State Medicaid programs pay managed care organizations (MCOs) a fixed amount per month for each enrollee, and rely on the MCO to submit service-level "encounter data" to the State. Because these encounter data were incompletely reported by MCOs and States in 1999 and not subject to the same federal data quality reviews as FFS claims data, services provided under managed care are excluded from these tables. These managed care exclusions are discussed further later in this introduction.

PROJECT IMPETUS

Many people with disabilities, including many adults with serious mental illness and children with serious emotional disturbance, are covered by Medicaid. In 2001, Medicaid spending for MH care accounted for 27 percent of total MH expenditures by all public and private payers combined, up from 19 percent in 1991 (Mark et al. 2005). Today, Medicaid funds more than half of the MH services administered by the States and could account for two-thirds of such spending by 2017 (Buck 2003).

The most comprehensive studies of such spending to date suggest that 8 to 12 percent of all Medicaid dollars are spent on MH services, and another one percent is spent on substance abuse services (Mark et al. 2003). One study of Medicaid beneficiaries in 10 States based on 1995 data found that while beneficiaries with a MH diagnosis accounted for only about 10 percent of the beneficiaries in those States, they accounted for nearly one-third of high-cost enrollees (Buck, Teich, and Miller 2003). Medicaid beneficiaries with an MH diagnosis thus appear to require a high level of care, not only for behavioral health services, but also for other medical services.

Despite Medicaid's role in providing mental health coverage for low-income individuals, comparatively few studies have examined mental health services across States, and no study has done so using a uniform and comprehensive data source. Furthermore, few studies have looked at *all* Medicaid services received by people with an MH diagnosis. (The exception is Larson et al. 2004, who looked at services received by children in four States.)

Several reasons may explain the relatively limited amount of research on the subject. Historically, researchers had to obtain beneficiary-level Medicaid data directly from the States, but the size and complexity of the data sets made this approach quite expensive, and the lack of uniformity in the data sets made State-by-State comparisons problematic. Starting in the 1980s, the agency that administers the Medicaid program [then the Health Care Financing Administration, and now the Centers for Medicare & Medicaid Services (CMS)], began to collect detailed person-specific information on Medicaid service use from some States. These data can be compiled into State-by-State analytic files. However, CMS does not compile program statistics by diagnosis. Thus, service use and expenditure information on MH and other major conditions were not readily available.

SAMSHA directed its attention to these problems beginning with 1986 data, when it used State-submitted Medicaid data to develop basic tabulations on the Medicaid population that uses MH services. The most recent tabulations, which are based on 1995 data, cover 10 States (Buck and Miller 2002).

For data covering fiscal year 1999, all States were required by the Balanced Budget Act of 1997 to submit this information into CMS's Medicaid Statistical Information System (MSIS). Thus, for the first time, data at the beneficiary level from all States were available in a single source.

While comprehensive, the MSIS data are difficult for researchers to use. Consequently, CMS prepares research files, the Medicaid Analytic Extract (MAX) files, from MSIS data. The MAX files link information on Medicaid-covered services to beneficiary demographic

information for a given calendar year. Researchers can use these data to study subgroups of the Medicaid population defined by beneficiary characteristics (e.g., age, sex), program features (e.g., eligibility group), and service-specific information (e.g., diagnoses, type of care received). Thus, MAX files are a far better source for addressing beneficiary service use than the MSIS data and were thus the source data for these tables.

IDENTIFYING THE MENTAL HEALTH POPULATION

The MH population represented in the tables was identified on the basis of either of two criteria:

- ***Claims with a Primary MH Diagnosis*.** Research has shown that primary diagnosis alone accounts for about 95 percent of MH cases identified through more sophisticated methods (Wright and Buck 1991). The diagnoses considered by most payers to be MH conditions were used as one criterion for identifying the MH population. These diagnoses, identified by the first three digits of ICD-9-CM codes, include schizophrenia, major depression and affective disorders, other psychoses, childhood psychoses, neurotic and other depressive disorders, personality disorders, other mental disorders, special symptoms and syndromes, stress and adjustment reactions, conduct disorders, emotional disturbances, and hyperkinetic syndrome. Each of these terms is described in Background Table 1.[2]

- ***Claims with a "Type of Service" Indicating MH Institutional Care*.** Medicaid may cover two institutional services at each State's option: mental hospital services for the aged and psychiatric residential treatment facilities providing psychiatric services to individuals under age 21. (These services are described in the technical notes.) Individuals receiving care from either of these kinds of institutions were presumed by this project to have MH conditions—even in the absence of a specific MH diagnosis—since people treated in these institutions must usually be screened to determine their need for this kind of specialized treatment.

SOME OVERALL GUIDES FOR USING THE TABLES

The technical notes at the end of this document define key terms and summarize State-specific ratings of data quality and completeness. Below are some overall guides for using the tables.

- ***Managed Care Exclusions.*** Services provided under capitated managed care are not used to identify MH beneficiaries, nor is care for individuals in managed care

[2] Alzheimer's disease, other dementias and cognitive disorders, mental retardation and developmental delays, substance abuse, and medical conditions related to alcohol or drug disorders (e.g., alcoholic cirrhosis of liver) were not included.

BACKGROUND TABLE 1

DIAGNOSIS CODES USED TO DEFINE THE MENTAL HEALTH POPULATION

Diagnostic Category	First Three Digits of ICD-9-CM Diagnosis Code	Example Conditions included within Diagnostic Category
Schizophrenia	295	Chronic and acute schizophrenic disorders
Major Depression and Affective Disorders	296	Manic, depressive, and bipolar disorders
Other Psychoses	297, 298	Paranoid States, delusional disorders, depressive psychosis, and reactive psychoses
Childhood Psychoses	299	Infantile autism, disintegrative disorders, and childhood-type schizophrenia
Neurotic and Other Depressive Disorders	300, 311	Anxiety States; phobic, obsessive-compulsive, and other neurotic disorders; and unspecified depressive disorders
Personality Disorders	301	Affective, schizoid, explosive, histrionic, antisocial, dependent, and other personality disorders
Other Mental Disorders	302, 306, 310	Sexual deviations, physiological malfunction arising from mental factors, and non-psychotic mental disorders due to organic brain damage
Special Symptoms and Syndromes	307	Eating disorders, tics and repetitive movement disorders, sleep disorders, and enuresis
Stress and Adjustment Reactions	308, 309	Acute reaction to stress, depressive reaction, separation disorders, and conduct disturbance
Conduct Disorders	312	Aggressive outbursts, truancy, delinquency, kleptomania, impulse control disorder, and other conduct disorders
Emotional Disturbances	313	Overanxious disorder, shyness, relationship problems, and other mixed emotional disturbances of childhood or adolescence such as oppositional disorder
Hyperkinetic Syndrome	314	Attention deficit with and without hyperactivity, and hyperkinesis with or without developmental delay

described in the tables.[3] As noted earlier, service-specific claims like those in the FFS system are often not available in capitated managed settings, since States pay managed care organizations (MCOs) a fixed amount per member per month for beneficiary care rather than a specific amount for each service provided. While most States now require Medicaid MCOs to submit encounter data that provide detail on specific services, the data were generally not well reported to States by MCOs in 1999, so most States were not able to submit useful encounter data to MSIS for that year.[4] Further, encounter data that were reported in that period were not subject to the MSIS data quality reviews given to FFS claims data. Thus, in order to have complete information on service utilization, beneficiaries who were enrolled in either comprehensive or behavioral health capitated managed care programs for their full enrollment period were excluded from Tables 2 through 9. Those who remain are the individuals in FFS care throughout the year and those receiving a mix of FFS and managed care during the year. For the latter group, services delivered during the months in which individuals were enrolled in managed care were excluded. The effects of these managed care exclusions vary from State to State. When managed care penetration is extensive, FFS care may not be at all representative of Medicaid services and users in a State. The extent of Medicaid managed care exclusions for four groups of beneficiaries—aged, disabled, adults, and children—is noted on the cover page for each set of State tables, and in the technical notes section of this Background document.

- ***Terms and Definitions.*** Every effort has been made to provide necessary explanatory material in each table through the use of headings and/or footnotes. Nevertheless, users should review the definitions of key terms in the technical notes to ensure that they interpret the statistics correctly.

- ***Data Quality.*** The source of the information in these tables is administrative data used by States to enroll Medicaid beneficiaries and pay for their care. State Medicaid programs vary greatly in their policies on enrollment and services covered, and while the data they submit to CMS through MSIS are in a uniform format and comply to the extent possible with uniform definitions of terms, the data are not necessarily equivalent from State to State. For example, some States were not able to report either services provided under waivers for home- and community-based services or enrollment during presumptive eligibility periods. Therefore, although the MSIS and MAX data are reviewed by CMS, various anomalies remain; those that have been explored through data quality reviews are documented, but each new use of the data uncovers additional irregularities. On the cover page for each set of State tables, known anomalies that are relevant to these particular tabulations are described.

[3] Primary care case management (PCCM) programs are treated as FFS, not managed care, since providers are paid directly on a FFS basis.

[4] Only a small number of States, including Arizona, Colorado, Maryland, Minnesota, and Oregon, were collecting usable encounter data from Medicaid managed care plans in 1999, and not all of them reported those data fully through MSIS. For details on State use of Medicaid encounter data in that period, see Verdier et al. 2002 and Kronick et al. 2000.

DESCRIPTION OF 1999 MENTAL HEALTH SERVICES TABLES

Overview

There is a set of nine identically structured 1999 mental health services tables for each State and for the nation as a whole. Developed from the 1999 MAX files, the tables compare Medicaid service use and costs for Medicaid beneficiaries with and without an MH diagnosis. These tables are described briefly below, and the set of nine tables for the nation as a whole is set out at the end of this introduction.

The tables for each State and for the nation as a whole include a cover page that summarizes overall data quality and completeness issues, with particular emphasis on the impact of managed care exclusions. As noted earlier, in States or in beneficiary eligibility categories with high managed care penetration, the mental health service use by beneficiaries remaining in FFS may not be representative of the mental health service use by all Medicaid beneficiaries, since those remaining in FFS tend to have higher mental health needs and service use.

Table 1: Medicaid Beneficiaries and Expenditures, Total and Fee-For-Service (FFS)

Table 1, an overview of the Medicaid population as a whole, presents the number of beneficiaries, total Medicaid expenditures, and the number of beneficiaries and expenditures for the segment of the population represented in Tables 2–9—i.e., beneficiaries who received care through standard FFS coverage for one or more months in 1999.[5] The beneficiaries and expenditures are also shown by age, gender, race, dual eligibility status, and eligibility group (aged, disabled, adults, children). For the nation as a whole, 72 percent of Medicaid beneficiaries were in FFS care for one or more months in 1999, and services received during this time account for 76 percent of total Medicaid expenditures.

Table 2: Medicaid FFS Mental Health Beneficiaries and Expenditures Compared to Total FFS Beneficiaries and Expenditures

Table 2 shows beneficiaries and expenditures by age, gender, race, dual eligibility status, and eligibility group, as in Table 1, but Table 2 includes only FFS Medicaid beneficiaries. It also identifies the subset of FFS beneficiaries who make up the MH population reflected in the rest of the tables. During 1999, these beneficiaries had one or more Medicaid claims with a primary diagnosis pertaining to MH (using those shown in Background Table 1 as an inclusion list) or a claim for care in an inpatient MH facility (either an inpatient psychiatric facility for beneficiaries age 21 and under or a mental hospital for beneficiaries age 65 and older). For the nation as a whole, the MH population made up 10 percent of Medicaid FFS beneficiaries and accounted for 27 percent of total FFS expenditures.

[5] Table 1 provides an overview of the Medicaid program, but does not include any information specific to MH beneficiaries or expenditures.

Table 3: Medicaid FFS Mental Health Population by Diagnostic Category and Age Group

Table 3 shows the number and percent of the FFS MH population by MH-related diagnosis. Each person is assigned to one diagnostic category only according to the diagnosis that appeared most frequently on claims during the year. The table shows the distribution of diagnoses for all MH beneficiaries and separate counts for three age groups—21 and under, 22 to 64, and 65 and older. For the nation as a whole, "neurotic and other depressive disorders"[6] was the most common diagnostic category for all MH beneficiaries: 22 percent of all MH beneficiaries fell into this category. Among beneficiaries age 22 to 64, 28 percent had "neurotic and other depressive disorders", compared to 27 percent among beneficiaries 65 and older, and just 12 percent of those age 21 and under. For beneficiaries 21 and under, "hyperkinetic syndrome" was the most common diagnosis, with 31 percent of beneficiaries of this age falling into that category.

Table 4: Psychiatric and General Inpatient Hospital Use for Medicaid FFS Mental Health Population, by Sex and Age Group

Table 4 shows the number of people in the MH population who used inpatient care and the average annual days per user, by age and sex. The table distinguishes between care in psychiatric facilities and in general inpatient hospitals; for care in general inpatient hospitals, it further distinguishes between care for MH treatment and non-MH treatment based on whether the primary diagnosis on the hospital claim was an MH diagnosis. Some individuals may have had stays in both psychiatric and general hospitals during the year; these beneficiaries are counted as users of each facility but are counted only once ("unduplicated") in the total users of hospitals for MH treatment. For the nation as a whole, average annual hospital use for MH beneficiaries was 54 days for users of psychiatric facilities, 11 days for users receiving MH treatment in general inpatient hospitals, and 6 days for users receiving non-MH treatment in general inpatient hospitals. The table also shows the percent of the MH FFS population that received inpatient care. In all age groups, 9 percent received inpatient MH care, and 14 percent received inpatient non-MH care.

Table 5: Emergency Room Use for Medicaid FFS Mental Health and Non-Mental Health Beneficiaries, by Sex and Age Group

Table 5 shows the number and percent of FFS MH beneficiaries who used an emergency room during the year, by sex and age. In the nation as a whole, 35 percent of FFS MH beneficiaries used an emergency room in 1999, averaging 2.95 emergency room visits during the year. For these emergency room users, the table also shows the average number of visits during the year for MH treatment (0.40 visits overall) and for non-MH treatment (2.54 visits); these figures are based on the primary diagnosis on the emergency room claim. For comparison, the table also shows the number and percent of non-MH beneficiaries who used the emergency room during the year (18 percent overall), and their average number of visits (2.00).

[6] This group of diagnoses includes anxiety states; phobic, obsessive-compulsive, and other neurotic disorders; and unspecified depressive disorders.

Table 6: Prescription Psychotropic Drug Use for Medicaid FFS Mental Health and Non-Mental Health Beneficiaries, by Age Group

Table 6 shows the number and percent of FFS beneficiaries (both the MH and non-MH population) with any psychotropic drug use by age group. (For example, 19 percent of FFS beneficiaries in all age groups nationwide filled prescriptions for psychotropic drugs, while 43 percent of beneficiaries age 45 to 64 filled such prescriptions, reflecting the high proportion of persons with disabilities and chronic illnesses in this age group). Also shown are the number and percent of MH and non-MH FFS beneficiaries with any psychotropic drug use by age group. In the nation as a whole, 69 percent of FFS MH beneficiaries used a psychotropic drug during the year, while 13 percent of non-MH beneficiaries did so.[7]

Tables 7, 8, and 9: Percent of Medicaid FFS Mental Health Beneficiaries Who Used Prescription Psychotropic Drugs, by Diagnostic Category and Drug Type

(Table 7: Age 21 and Under, Table 8: Age 22 to 64, and Table 9: Age 65 and Older)

These three tables show the number and percent of FFS MH beneficiaries: by diagnosis category, the percent who used each of five major types of psychotropic drugs, the percent who used more than one of these types of drugs, and the percent who used no psychotropic drugs. In the nation as a whole, for example, 54 percent of FFS MH beneficiaries age 21 and under with a diagnosis of major depression used antidepressants in 1999, 37 percent used more than one type of psychotropic drug, and 17 percent did not use any psychotropic drugs.

TECHNICAL NOTES

The technical notes cover the following: (1) definition of key terms and concepts, (2) common themes from the State data quality and completeness cover pages, and (3) State-by-State data quality and completeness scores.

Definition of Key Terms and Concepts

This section defines key terms used in the tables, providing additional information that may help researchers interpret the tables.

[7] As discussed in more detail later, this latter number is artificially high, since diagnoses for dual eligibles are frequently not available in the MAX files, resulting in their classification as non-MH beneficiaries when they may actually have an MH condition. Most aged Medicaid beneficiaries are dually eligible, and, on average, about 40 percent of Medicaid disabled beneficiaries are dually eligible. Medicare covers most hospital and physician care for dual eligibles, but those claims do not appear in the MAX files. As a result, many dual eligibles may show up in Table 6 as non-MH beneficiaries, even though they have an MH diagnosis on their Medicare claims.

Beneficiary

A beneficiary is a person enrolled in Medicaid for at least one month during the calendar year. This definition excludes some individuals reported on MSIS/MAX data, especially children enrolled in a State Children's Health Insurance Programs that is separate from the Medicaid program (S-SCHIP enrollees). Twenty-eight States operated such programs in 1999, often in combination with M-SCHIP programs, which are part of Medicaid (Rosenbach 2003). The MAX files used for this project do not include S-SCHIP enrollees or expenditures for them.

Capitated Managed Care

In capitated managed care, an organization contracts with Medicaid to provide whatever care is necessary, within a fixed package of services, for a given period. The organization, or "plan," is paid a fixed amount per person per month (a "capitated" payment) regardless of the services provided. There are often no claims for individual services, although there may be "encounter records" that document what services were provided. In general, encounter data are not submitted to MSIS, but when they are, they are often incomplete.

As noted, there is very little service-specific information in the 1999 MAX files for beneficiaries in capitated plans. In 1998, 18 States reported that they provided full or limited MH benefits through comprehensive capitated health plans for some Medicaid beneficiaries, and 15 reported that they provided such benefits through a separate capitated behavioral health plan. In 2000, 15 States reported providing MH benefits through comprehensive plans, and 16 did so through behavioral health plans (Kaye 2005). Given the paucity of encounter data on the 1999 MAX files, service use within capitated health plans cannot be reported on a State-by-State basis for 1999.

Fee-for-Service (FFS)

Fee-for-service care is when providers are paid separately for each service (or package of services) delivered. Two types of capitated plans—a comprehensive health plan such as a health maintenance organization (HMO) or a behavioral health plan (BHP)—were considered as capitated managed care, while a third type of plan—primary care case management (PCCM), in which a premium is paid for management of care but individual services are paid separately—was treated as FFS care.

Fee-for-Service (FFS) Beneficiary

FFS beneficiaries in these tables were enrolled in Medicaid for at least one month in which they were not enrolled in capitated managed care.

Medicaid Expenditures

Medicaid expenditures are monies paid by the Medicaid program, rounded to whole dollars, for services that are reported in claims data (Tables 1 and 2). Expenditures that are not claims-based, such as disproportionate share (DSH) payments to hospitals, are not identifiable at the

beneficiary level and are thus not included in the MAX files. Premium payments made by Medicaid for Medicare coverage are also not included.

Mental Health FFS Beneficiaries

These individuals are FFS beneficiaries who had any claim with a primary diagnosis related to mental health (see Background Table 1) or who had a claim with one of two Medicaid-covered types of service for inpatient psychiatric care: mental hospital services for the aged[8] or psychiatric residential treatment facilities (PRTFs) providing psychiatric services to individuals under age 21,[9] regardless of the diagnosis on that claim.

Non-Mental Health FFS Beneficiary

These individuals are FFS beneficiaries who did not meet the MH criteria regarding diagnoses on claims or claims for specific mental services.

Dual Eligibles

Dual eligibles are individuals enrolled in both Medicare and Medicaid. Medicare coverage, which is primary to Medicaid coverage for all dual eligibles, covers two major groups of individuals: those age 65 and older, and those under 65 who have had a disability or chronic illness for at least two years. Dual eligibles are thus reported in the tables as "aged" or "disabled."

A large portion of dual eligibles are covered for the full Medicaid benefit package; these are the so-called "full" dual eligibles. Medicaid also covers Medicare premiums, deductibles, and coinsurance for these full dual eligibles. In the tables, full dual eligibles are reported as aged or disabled duals "with full Medicaid." Since Medicare coverage for prescription drugs and long-term care was limited at the time, while Medicaid covered these services, full dual eligibles received these benefits largely through Medicaid in 1999.

Other dual eligibles with somewhat higher income and/or assets do not qualify for full Medicaid coverage. For these individuals, Medicaid pays all or part of a beneficiary's Medicare cost sharing (premiums, deductibles, and coinsurance) but does not provide other services; these people are referred to in the tables as "duals with limited Medicaid."[10]

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[8] Individuals 65 years of age or older who are in hospitals or nursing facilities that are institutions for mental diseases (IMDs) may be covered for this care as an optional benefit, meaning that States can decide whether to cover this service. An IMD is defined as a facility of more than 16 beds that is primarily engaged in providing treatment services for individuals diagnosed with mental illness.

[9] States may also provide coverage for psychiatric residential treatment facilities that provide Medicaid inpatient psychiatric services to individuals under age 21, often referred to as inpatient psychiatric coverage for those under 21. (Individuals who are in such facilities on their 21st birthday can be covered up to age 22.)

[10] To save space, these duals with limited Medicaid are not separated into aged and disabled categories.

Because of limits in the State data, it is not always possible to distinguish full Medicaid beneficiaries from those with limited benefits. In most cases, individuals are assigned to either "full" or "limited" categories, and notes on the State cover pages provide the rationale for the decision. However, a very small number of beneficiaries with conflicting information on coverage, reported in the "other duals" row, account for less than one percent of beneficiaries in all States.

Crossover Claims

A "crossover claim" is a coinsurance or deductible amount paid by Medicaid for a service for which Medicare has primary payment responsibility. Crossover claims are usually related to services provided by hospitals, physicians, clinics, and therapists for dual eligibles because these services are covered quite extensively under Medicare. Crossover claims are often missing important details such as diagnosis codes, which are particularly relevant to the tables.

Even more problematic, however, is an absence of claims data for dual eligibles in States that pay little or no coinsurance for Medicare-covered services (which can occur when the Medicaid payment for the service is less than the Medicare payment). In this case, the claims—and thus the services they describe—for dual eligibles are entirely missing from the MAX files. It may therefore appear from the tables that no dual eligibles have an MH diagnosis. However, since prescription drugs were covered under Medicaid in 1999, there may be (non-crossover) Medicaid claims for psychotropic drugs for dual eligibles who are not identified as an MH beneficiary.

Mental Health Diagnosis Category

In Tables 3, 7, 8, and 9, service use for individuals is reported by MH diagnostic category. For this purpose, each MH beneficiary is assigned to one MH diagnostic category on the basis of the diagnosis that appeared most frequently on claims with relevant diagnosis codes in the year. In case of a "tie" between diagnoses, precedence is given to diagnoses on the Inpatient (IP) file, since they tend to be the most complete and reliable, followed by diagnoses on the Outpatient (OT) file, and finally, by diagnoses on the Long Term Care (LT) file.

Psychotropic Drugs

Psychotropic drugs include anti-depressants, anti-psychotics, anti-anxiety agents, mood-stabilizing agents, and stimulants.[11] Each claim for a prescription drug was placed into one of these groups of psychotropic drugs or into a non-MH drug category using drug classification software from Multum, Inc. Utilization of these drugs could then be shown for both the MH and non-MH population. For more detail on the categorization of drugs, see Appendix A, "Drugs Included as Psychotropic."

[11] While anti-convulsants are often used to treat mental illness, they are not included as psychotropic drugs for purposes of these tables.

Age Group

Beneficiary age, reported as of December 31, 1999, is grouped in two ways. The more detailed groupings are 0-3, 4-5, 6-12, 13-18, 19-21, 22-44, 45-64, and 65 and older. The more consolidated groups reported are 0-21, 22-64, and 65 and older. People whose age is unknown, who account for less than 0.3 percent of beneficiaries nationwide, are excluded from table sections that show population by age.

Sex

Females and males are reported separately in some tables. People whose gender is not reported are excluded from table sections that show population by sex and account for about 0.2 percent of beneficiaries nationwide.

Race/Ethnicity

Race and ethnicity are reported according to the categories used for Medicaid reporting in 1999: White, Black, Hispanic, American Indian/Alaska Native, Asian/Pacific Islander, and Other/Unknown. In some States, "Other/Unknown" is coded for many individuals because race/ethnicity is not routinely gathered at intake or because a single race/ethnicity code does not adequately describe the beneficiary. Race for dual eligibles is usually copied from Social Security Administration records, where the information is self-reported.

Eligibility Group

The broad category under which each enrollee is eligible for Medicaid is called the "basis of eligibility," within which there are four subcategories: aged, disabled, adult, and child. These groups are redefined slightly in the tables:

- ***Aged.*** All beneficiaries whose basis of eligibility is aged *and* any other enrollees age 65 and older.
- ***Disabled.*** Individuals who are disabled, blind, or chronically ill, as determined by federal or State standards. Included in this group are all individuals reported as disabled, except those age 65 and older.
- ***Adults.*** Nondisabled people, usually caretakers or parents, who are classified as adults in State enrollment files. This group was not redefined by age. Often, heads of household are called "adults" for Medicaid purposes, regardless of their age.
- ***Children.*** All individuals classified as children in State enrollment files. This group was not redefined by age.

Emergency Room

Emergency room use was defined by three different sets of codes on OT claims: place of service, hospital revenue code, and procedure codes for visits that specify emergency room as the location.

Common Themes from the State Data Quality and Completeness Cover Pages

As noted, States varied widely in the quality and completeness of their 1999 MAX data in some key areas that are relevant to the tables in this report, especially with respect to the percent of beneficiaries covered by managed care (and thus excluded from the tables), and the availability of diagnoses on MH conditions.

To help users draw appropriate conclusions from the information in the tables, a cover sheet for each State's tables summarizes the State's data quality and completeness issues. Viewed as a whole, the cover sheets indicate that certain themes related to data issues are common across the States. Each sheet includes a graphic showing the percent of the State's Medicaid population that is excluded from the tables because they are always in managed care (by Medicaid "basis of eligibility"); a set of comments specific to quality concerns about the State's data; and a score from 1 (poor) to 4 (good) for data quality and completeness.

Managed Care Enrollment

Several States enroll all or nearly all of their Medicaid beneficiaries in managed care. In States that use managed care primarily to cover individuals with relatively low MH service use, such as nondisabled children and adults, MH service use for those who remain in FFS may appear unusually high compared to States in which the entire Medicaid population is in FFS.

There are also instances where reporting of enrollment in managed care is problematic: States either did not identify capitated behavioral health plans (BHPs) as such or termed primary care case management (regarded as FFS in these tables) as capitated care. In these cases, some individuals and services may have been improperly excluded from the tables.

Uneven Reporting of Enrollment

In some States, enrollment is unevenly reported across months in the quarter, and the uneven reporting often falls into a pattern in which there are far more enrollees in the first month or last month of the quarter than in the other two months. This reporting phenomenon is sometimes related to the fact that retroactive enrollment is not fully corrected for. Claims for services were not included if they were delivered in months in which a beneficiary was not enrolled, according to State reporting. Thus, States with erratic enrollment reporting patterns may under-identify MH beneficiaries and likely undercount service utilization.

Race

In some States, significant proportions of the population are reported with unknown race.

Identification and Reporting of Dual Eligibles

Many States had difficulty reporting whether dual eligibles were entitled to full or limited Medicaid benefits. In the tables, these individuals typically appear as having full benefits. In addition, some States did not include dual eligibles with limited benefits in their MSIS data, and, in others, a high proportion of reported dual eligibles did not match to Medicare enrollment information, either because they really did not have Medicare coverage or because their identification information was not sufficient or accurate enough to establish a link.

Beneficiaries with Limited or Restricted Benefits

Although dual eligibles with limited Medicaid benefits are identified in several tables, other enrollees with limited benefits are not separately identified. Most cases of restricted benefits are related to the fact that a State covers some individuals for family planning or emergency medical services only. If the affected populations are large, the rates of MH beneficiaries and service use may appear low, since MH services would usually not be covered in limited or restricted benefit packages.

Missing Crossover Claims

In many States, Medicaid pays nothing on crossover claims because the Medicare payment already exceeds the allowed Medicaid fee-schedule rate for the service. In these cases, Medicaid claims will only include services for which Medicare does not pay at all, most commonly prescription drugs and long-term nursing home care. Additionally, in some States, crossover claims do not include diagnosis codes, meaning that even inpatient claims for hospital deductibles cannot be used to determine whether a beneficiary has an MH diagnosis. In general, therefore, it can be difficult to identify the MH population within the dual eligible group.

Emergency Room Use

Emergency room use was defined by any of three criteria: place of service, hospital revenue code, and procedure codes for emergency room visits. In some States, place of service is incompletely reported. Other States do not use revenue codes for outpatient hospital billing. In these cases, emergency room use will be under-reported in the tables. In other States, place of service is incorrectly coded on claims for services that are probably not emergency room services, resulting in the over-reporting of ER care in both numbers of users and frequency of visits.

Inpatient Days

When a dually eligible beneficiary's inpatient stay is covered primarily by Medicare, Medicaid often pays a deductible. Some States interpret that payment as Medicaid coverage for one day of the stay. Other States interpret "Medicaid covered days" as including only days covered in full by Medicaid, so they report zero covered days for a crossover stay. Another group of States reports the number of days covered by Medicare as covered days. Finally, many States do not record any details about lengths of stay on crossover claims. For any one or combination of these reasons, average lengths of stay for beneficiaries who are dually eligible

(most aged and some disabled) are under-reported because of the presence of individual claims with one or zero covered days. In some cases, this even causes inpatient hospital stays to average zero days in length. It also explains more generally the low lengths of stay that appear for some groups on Table 4.

State-by-State Data Quality and Completeness Scores

The criteria to score each State's data quality and completeness are *specific to this project and these tables.* The scoring is not relevant to the States' overall MAX data quality but represents how accurately the data reflect the MH population and their service usage as reported in the tables.

The scores are also relevant only to calendar year 1999, the first year for which complete validation and data quality reviews of MSIS were conducted. In the years that followed, many States significantly improved the quality of their data.

The information about State data quality was compiled from several sources. The most significant source was the "Data Anomalies Report" produced for the Mathematica MAX project; this report includes information on all known anomalies with the data, with clarification of the reason for the problem if it could be determined through research by the State in question. Additional sources were the "Data Validation Reports" from the MAX project and the "Data Quality Reports" from the Mathematica MSIS project; each of these reports shows distributions of particular values within some data elements and trends across times that may highlight errors.

For State scores on all dimensions, see Appendix B, "Detailed Data Quality and Completeness Scores for All States."

Background Table 2 shows all States, grouped by their data quality and completeness scores. Background Table 3 shows, for each state, the percent of managed care penetration and data quality points scores (described in detail in Appendix B) that together produce the overall Data Quality and Completeness Score.

BACKGROUND TABLE 2

STATES BY QUALITY AND COMPLETENESS SCORE

(Good) 4	3.5	3	2.5	2	1.5[a]	(Poor) 1[a]
Arkansas	Alaska	Illinois	Alabama	Colorado	Hawaii	Arizona
Idaho	Indiana	Kansas	California	Connecticut	Iowa	Tennessee
Louisiana	Ohio	Mississippi	Florida	Delaware	Michigan	Utah
Maine	Montana	Missouri	Georgia	Kentucky	Washington	
North Carolina	South Dakota	Nevada	Minnesota	Maryland		
North Dakota	Texas	New Hampshire	Nebraska	Massachusetts		
South Carolina	West Virginia	Oklahoma	New Jersey	New Mexico		
Wyoming		Virginia	Pennsylvania	New York		
		Wisconsin	Vermont	Oregon		
				Rhode Island		
				Washington DC		
8 States	**7 States**	**9 States**	**9 States**	**11 States**	**4 States**	**3 States**

[a]Tables for States with scores of 1 or 1.5 contain almost no information at all, or information that does not convey an accurate picture of their Medicaid program's MH population or service use.

Basis of Scoring

Managed Care

The percent of capitated managed care enrollment accounts for approximately half of each State's scoring potential. A high proportion of managed care enrollment was considered a severe problem, since excluding individuals enrolled in managed care means that those remaining are not likely to be fully representative of the State's total Medicaid population. Fifteen States had virtually no Medicaid managed care, while in eight States, 55 to 100 percent of the Medicaid population was in managed care for their full enrollment period. The latter group of States therefore received a low score for data completeness.

Other Factors

The other component of each State's score is the result of a composite made up of the following dimensions:

- ***Particular aspects of eligibility data quality.*** This dimension of the composite score included:
  - Known problems in managed care reporting (that is, potential misidentification of the managed care status of beneficiaries).

- Situations in which it is known that some enrollment records are completely missing from the MSIS files.
- Uneven enrollment counts across months, suggesting that enrollment information was incomplete or occasionally inflated.
- Presence of significant subgroups of Medicaid enrollees with restricted benefits, meaning that analyses of utilization rates across the full beneficiary population misrepresents individuals' use of services.
- Poor match rate of Medicaid reporting of dual eligible status compared to Medicare enrollment data.
- Problems identifying groups within dual eligibles
- Incomplete reporting of race, sex, date of birth, or eligibility group.
- Under-reporting or misidentification of foster care beneficiaries.
- Presence of significant numbers of enrollees with "other" (e.g., private, Indian Health Service) health insurance, since utilization of services by these groups would be under-reported in Medicaid data.

- ***Quality of diagnosis coding on claims data.*** Since diagnoses reported on claims are key to identifying the target population, the quality of diagnosis coding was assessed as an important condition of quality and completeness. Indicators of poor quality in this measure are:
  - Known incorrect reporting of MH diagnoses, such as use of MH codes to report other conditions.
  - Presence of diagnosis codes on too many claims (e.g., from providers where diagnoses are not known, or use of State-specific codes to identify MH conditions, or frequent use of invalid codes, for which the meaning is therefore unknown).
  - Missing diagnosis codes on non-crossover claims (those without Medicare as primary payer) and on crossover claims, with more importance given to inpatient and outpatient claims with missing codes than to long-term care claims, and more emphasis on noncrossover claims with missing diagnosis codes than on crossover claims.
- ***Other aspects of claims data quality***. In addition to diagnosis coding, other indicators of poor data quality include missing or mis-identified claims, problems identifying or counting emergency room visits, and problems counting days of inpatient and/or psychiatric facility care.
- ***Outlier identification rates of MH beneficiaries within eligibility groups***. Many of the items already discussed suggest reasons for unusually low or high rates of identification of MH beneficiaries. Among them is inclusion of enrollees with restricted benefits, a high proportion of individuals with other health insurance, missing claims, and claims that do not include diagnosis codes. However, some States had extremely low or high rates of identification within or across eligibility groups for which no explanation could be found. Since these situations could

indicate additional data problems or unusual program characteristics, they are flagged and scored as shown in Appendix Table B-5.

BACKGROUND TABLE 3

DATA QUALITY AND COMPLETENESS SCORES BY STATE

	Percent Managed Care Penetration	Total Problem Points across Four Dimensions	Sum of Managed Care Penetration Percent and Problem Points	Data Quality Score
Alabama	35	14	49	2.5
Alaska	0	21	21	3.5
Arizona	100	3	103	1
Arkansas	0	5	5	4
California	32	25	57	2.5
Colorado	54	24	78	2
Connecticut	52	16	68	2
Delaware	56	14	70	2
Florida	13	38	51	2.5
Georgia	1	46	47	2.5
Hawaii	53	46	99	1.5
Idaho	0	11	11	4
Illinois	7	19	26	3
Indiana	10	8	18	3.5
Iowa	71	22	93	1.5
Kansas	7	20	27	3
Kentucky	60	18	78	2
Louisiana	0	13	13	4
Maine	2	13	15	4
Maryland	42	22	64	2
Massachusetts	58	25	83	2
Michigan	46	45	91	1.5
Minnesota	44	8	52	2.5
Mississippi	0	28	28	3
Missouri	13	18	31	3
Montana	1	20	21	3.5
Nebraska	42	16	58	2.5
Nevada	23	9	32	3
New Hampshire	2	39	41	3
New Jersey	36	18	54	2.5
New Mexico	42	18	60	2
New York	17	51	68	2
North Carolina	3	4	7	4
North Dakota	1	14	15	4
Ohio	11	8	19	3.5
Oklahoma	17	19	36	3
Oregon	55	8	63	2
Pennsylvania	43	12	55	2.5
Rhode Island	46	16	62	2
South Carolina	2	9	11	4
South Dakota	0	20	20	3.5
Tennessee	99	20	119	1
Texas	7	12	19	3.5
Utah	82	21	103	1
Vermont	28	23	51	2.5
Virginia	12	10	22	3

	Percent Managed Care Penetration	Total Problem Points across Four Dimensions	Sum of Managed Care Penetration Percent and Problem Points	Data Quality Score
Washington	29	57	86	1.5
Washington DC	37	22	59	2
West Virginia	7	11	18	3.5
Wisconsin	27	13	40	3
Wyoming	0	8	8	4

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APPENDIX A

DRUGS INCLUDED AS PSYCHOTROPICS

Appendix Table A-1 shows the drug groups included as psychotropic, and the groups within which usage is reported, on the Medicaid Mental Health tables. Appendix Table A-1 shows the coding and groupings that were selected from the Cerner Multum VantageRX™ database's drug categorization software[12]. Also provided are examples of brand-name drugs in each coded drug identifier.

APPENDIX TABLE A-1

DRUGS INCLUDED AS PSYCHOTROPICS ON MEDICAID MENTAL HEALTH TABLES

Psychotropic Drug Groups on Medicaid Mental Health Tables	Multum Group	Multum Group Description	Drug Identifier	Example Drug
Antidepressants	76	Miscellaneous Antidepressants	d00181	Wellbutrin
			d00395	Trazodone
			d00877	Maprotiline
			d03181	Effexor
			d03808	Serzone
			d04025	Remeron
	208	SSRI Antidepressants	d00236	Prozac
			d00880	Zoloft
			d03157	Paxil
			d03804	Luvox
			d04332	Celexa
	209	Tricyclic Antidepressants	d00146	Elavil
			d00217	Sinequan
			d00259	Imipramine Hydrochloride
			d00873	Surmontil
			d00874	Amoxapine
	250	Monoamine Oxidase Inhibitors	d00882	Marplan
			d00883	Nardil
			d00884	Parnate
Antipsychotics	77	Miscellaneous Antipsychotic Agents	d00027	Haloperidol
			d00061	Lithium
			d00199	Clozapine
			d00896	Moban
			d00897	Loxapine

[12] The drug categorization database VantageRX™ was provided under a free license to Mathematica Policy Research for use for research purposes. The source of this database is Multum Information Services, Inc., Denver, CO 80209.

Psychotropic Drug Groups on Medicaid Mental Health Tables	Multum Group	Multum Group Description	Drug Identifier	Example Drug
			d00898	Orap
			d03180	Risperdal
			d04050	Zyprexa
			d04220	Seroquel
			d04747	Geodon
	79	Psychotherapeutic Combinations	d03462	Amitriptyline-Chlordiazepoxide
			d03463	Amitriptyline-Perphenazine
	210	Phenothiazine Antipsychotics	d00064	Chlorpromazine
			d00237	Fluphenazine Hydrochloride
			d00355	Compazine
			d00356	Promazine Hydrochloride
			d00389	Thioridazine Hydrochloride
			d00855	Perphenazine
			d00889	Serentil
			d00890	Stelazine
			d03152	Vesprin
Anti-Anxiety Agents	68	Barbiturates	d00171	Amytal Sodium
			d00335	Pentobarbital Sodium
			d00340	Phenobarbital
			d00368	Seconal Sodium
			d00919	Mebaral
			d00923	Butabarbital
			d04005	Tuinal
	69	Benzodiazepines	d00040	Oxazepam
			d00148	Valium
			d00149	Lorazepam
			d00168	Alprazolam
			d00189	Chlordiazepoxide Hydrochloride
			d00197	Clonazepam
			d00198	Clorazepate Dipotassium
			d00238	Flurazepam Hydrochloride
			d00301	Midazolam Hydrochloride
			d00384	Temazepam
			d00397	Triazolam
			d00904	Paxipam
			d00915	Estazolam
			d00917	Doral

Psychotropic Drug Groups on Medicaid Mental Health Tables	Multum Group	Multum Group Description	Drug Identifier	Example Drug
	70	Miscellaneous Anxiolytics, Sedatives And Hypnotics	d00147	Chloral Hydrate
			d00182	Buspar
			d00212	Diphenhydramine Hydrochloride
			d00217	Sinequan
			d00226	Placidyl
			d00288	Meprobamate
			d00907	Hydroxyzine Hydrochloride
			d00909	Trancopal
			d00910	Ambien
			d00911	Paral
			d00912	Paxarel
			d00914	Largon
			d03154	Doxylamine
			d04452	Sonata
			d04505	Precedex
Stimulants	71	CNS Stimulants	d00801	Caffeine
			d00802	Dopram
			d00804	Dextrostat
			d00805	Methamphetamine Hydrochloride
			d00806	Phentermine Hydrochloride ER
			d00807	Didrex
			d00809	Phendimetrazine Tartrate
			d00810	Diethylpropion Hydrochloride
			d00811	Sanorex
			d00812	Pondimin
			d00900	Methylphenidate Hydrochloride
			d00901	Pemolert
			d04035	Adderall XR
			d04036	Caffeine-Sodium Benzoate
			d04378	Provigil
			d04777	Focalin

APPENDIX B

MENTAL HEALTH SERVICES IN MEDICAID, 1999
DETAILED DATA QUALITY AND COMPLETENESS SCORES FOR ALL STATES

Appendix B includes seven tables that show the process by which states' data quality and completeness were scored for purposes of the Mental Health Services in Medicaid in 1999 tables. Many of the details of particular data quality issues that are scored in these tables are described on the cover page for each State's set of tables.

- **Table B.1 -- Percent of Population Always in Managed Care.** This table shows the percent of each state's Medicaid beneficiaries who were always enrolled in managed care – that is, where the beneficiary was enrolled in capitated managed care for every month of Medicaid enrollment. The percent of capitated managed care enrollment accounts for approximately half of each State's scoring potential. A high proportion of managed care enrollment was considered a severe problem, since excluding individuals enrolled in managed care means that those remaining are not likely to be fully representative of the State's total Medicaid population.

- **Table B.2 -- Other Aspects of Eligibility Data Quality.** Scores for each state on twelve additional aspects of eligibility data quality (beyond managed care enrollment) are shown on this table.

  - Known problems in managed care reporting (that is, potential misidentification of the managed care status of beneficiaries).
  - Situations in which it is known that some enrollment records are completely missing from the MSIS files.
  - Uneven enrollment counts across months, suggesting that enrollment information was incomplete or occasionally inflated.
  - Presence of significant subgroups of Medicaid enrollees with restricted benefits, meaning that analyses of utilization rates across the full beneficiary population misrepresents individuals' use of services.
  - Poor match rate of Medicaid reporting of dual eligible status compared to Medicare enrollment data.
  - Problems identifying groups within dual eligibles.
  - Incomplete reporting of race, sex, date of birth, or eligibility group.
  - Under-reporting or misidentification of foster care beneficiaries.
  - Presence of significant numbers of enrollees with "other" (e.g., private, Indian Health Service) health insurance.

- **Table B.3 – Problems with Diagnosis Coding.** Since diagnoses reported on claims are key to identifying the target population, the quality of diagnosis coding was assessed as an important condition of quality and completeness. Indicators of poor quality in this measure are:

  - Known incorrect reporting of MH diagnoses, such as use of MH codes to report other conditions.
  - Presence of diagnosis codes on too many claims (e.g., from providers where diagnoses are not known, or use of State-specific codes to identify MH

conditions, or frequent use of invalid codes, for which the meaning is therefore unknown).

- Missing diagnosis codes on non-crossover claims (those without Medicare as primary payer) and on crossover claims, with more importance given to inpatient and outpatient claims with missing codes than to long-term care claims, and more emphasis on noncrossover claims with missing diagnosis codes than on crossover claims.

- **Table B.4 – Other Aspects of Claims Data Quality.** Additional aspects of claims data quality (beyond diagnosis coding) include missing claims (sometimes because the claims could not be properly identified and other times because they were not included in the states' data submissions), problems identifying emergency room services (because of problems with the quality of procedure coding, place of service coding, or quantities), problems counting days of inpatient and/or psychiatric facility care and other unexplained utilization anomalies.

- **Table B.5 – Outlier Rates of FFS Beneficiaries Identified in MH Population.** Many of the items already discussed suggest reasons for unusually low or high rates of identification of MH beneficiaries. Among them is inclusion of enrollees with restricted benefits, a high proportion of individuals with other health insurance, missing claims, and claims that do not include diagnosis codes. However, some States had extremely low or high rates of identification within or across eligibility groups for which no explanation could be found. Since these situations could indicate additional data problems or unusual program characteristics, they are flagged and scored in this table.

- **Table B.6 – Summing Problem Points.** This table sums the problem points from Tables B.2 through B.5 for each State.

- **Table B.7 – Assignment of Final Data Quality Score.** This table sums the managed care penetration percent (from Table B.1) with the problem points (from Table B.6), sorts the results from best (lowest score) to worst (highest score), and assigns a data quality score between 4 (best) and 1 (worst). These are the scores that are shown on the cover page of each individual state's tables.

TABLE B.1

PERCENT OF POPULATION ALWAYS IN MANAGED CARE

States	Managed Care Penetration
Alabama	35
Alaska	0
Arizona	100
Arkansas	0
California	32
Colorado	54
Connecticut	52
Delaware	56
Florida	13
Georgia	1
Hawaii	53
Idaho	0
Illinois	7
Indiana	10
Iowa	71
Kansas	7
Kentucky	60
Louisiana	0
Maine	2
Maryland	42
Massachusetts	58
Michigan	46
Minnesota	44
Mississippi	0
Missouri	13
Montana	1
Nebraska	42
Nevada	23
New Hampshire	2
New Jersey	36
New Mexico	42
New York	17
North Carolina	3
North Dakota	1
Ohio	11
Oklahoma	17
Oregon	55
Pennsylvania	43
Rhode Island	46
South Carolina	2
South Dakota	0
Tennessee	99
Texas	7

States	Managed Care Penetration
Utah	82
Vermont	28
Virginia	12
Washington	29
Washington DC	37
West Virginia	7
Wisconsin	27
Wyoming	0
All States	28

Note: A low managed care penetration yields higher data availability, and thus 0% is optimal in the context of data completeness scores.

TABLE B.2

OTHER ASPECTS OF ELIGIBILITY DATA QUALITY

Characteristic	Known Problems with Managed Care Reporting	Missing Enrollment	Uneven Enrollment Across Months	Restricted Benefits Affect Denomin-ators	Dual Eligibles Do Not Match EDB	Problems Identifying Type of Dual Eligibility	Unknown Race	Unknown Sex	Unknown Date of Birth	Unknown Eligibility Group	Problems with Reporting of Foster Care	Unknown Effects of Other Health Insurance	Total Problem Points from Other Eligibility Issues
Problem Points Range (depending on severity/magnitude of problem)	4 - 11	4 - 10	9	2 - 7	10	3	2 - 6	2	1 - 4	2 - 3	3	1	N/A
Alabama	0	0	9	0	0	0	0	0	0	0	0	0	9
Alaska	0	0	9	0	0	0	0	0	0	0	0	0	9
Arizona	0	0	0	0	0	0	0	0	0	0	3	0	3
Arkansas	0	0	0	4	0	0	0	0	0	0	0	0	4
California	0	4	0	7	0	0	4	0	0	0	0	0	15
Colorado	0	4	0	4	0	0	4	0	0	2	0	0	14
Connecticut	0	0	0	0	0	0	0	0	0	0	3	0	3
Delaware	0	0	0	4	0	0	0	0	0	0	3	0	7
Florida	11	0	0	4	0	0	4	0	0	0	0	0	19
Georgia	11	10	9	0	0	3	2	0	0	0	0	0	35
Hawaii	0	0	0	0	10	3	6	0	0	0	0	0	19
Idaho	0	0	0	0	0	0	0	0	0	0	0	1	1
Illinois	0	0	0	0	0	0	0	0	0	0	0	0	0
Indiana	4	0	0	0	0	0	0	0	0	0	0	0	4
Iowa	0	0	0	0	0	0	2	0	0	0	0	1	3
Kansas	11	0	0	0	0	0	0	0	0	0	3	0	14
Kentucky	0	0	0	0	10	0	0	0	0	0	0	0	10
Louisiana	0	4	0	2	0	0	2	0	0	0	0	0	8
Maine	0	4	0	0	0	0	0	0	0	0	0	0	4
Maryland	0	0	0	4	0	0	0	0	0	0	0	0	4
Massachusetts	0	0	0	4	0	3	6	0	0	0	3	0	16
Michigan	0	0	0	0	0	0	2	0	0	0	0	0	2
Minnesota	0	0	0	0	0	0	0	0	0	0	0	0	0
Mississippi	8	0	0	0	10	0	2	0	0	0	0	0	20
Missouri	8	0	0	0	0	0	0	0	0	0	0	0	8
Montana	0	0	0	2	0	0	0	0	0	0	0	1	3
Nebraska	0	0	0	0	0	0	0	2	2	3	0	0	7
Nevada	0	0	0	0	0	0	0	0	0	0	0	0	0
New Hampshire	11	4	0	0	0	0	0	0	0	0	0	0	15
New Jersey	0	0	0	4	0	0	4	0	0	0	0	0	8

Characteristic	Known Problems with Managed Care Reporting	Missing Enrollment	Uneven Enrollment Across Months	Restricted Benefits Affect Denomin-ators	Dual Eligibles Do Not Match EDB	Problems Identifying Type of Dual Eligibility	Unknown Race	Unknown Sex	Unknown Date of Birth	Unknown Eligibility Group	Problems with Reporting of Foster Care	Unknown Effects of Other Health Insurance	Total Problem Points from Other Eligibility Issues
Problem Points Range (depending on severity/magnitude of problem)	4 - 11	4 - 10	9	2 - 7	10	3	2 - 6	2	1 - 4	2 - 3	3	1	N/A
New Mexico	0	0	0	0	0	0	0	0	0	0	0	0	0
New York	8	0	0	0	0	3	6	2	4	0	0	0	23
North Carolina	0	0	0	0	0	0	2	0	0	0	0	0	2
North Dakota	0	0	0	0	0	0	3	0	0	0	0	1	4
Ohio	0	0	0	0	0	0	0	0	0	0	0	0	0
Oklahoma	0	0	9	0	0	0	0	0	0	0	3	0	12
Oregon	0	0	0	0	0	0	0	0	0	2	0	0	2
Pennsylvania	0	0	9	0	0	0	0	0	0	0	0	1	10
Rhode Island	0	0	0	7	0	0	6	0	0	0	0	0	13
South Carolina	0	0	0	0	0	3	0	0	1	0	0	0	4
South Dakota	0	0	0	0	0	3	0	0	0	0	0	1	4
Tennessee	0	10	0	0	10	0	0	0	0	0	0	0	20
Texas	0	0	0	0	0	3	0	0	0	0	0	0	3
Utah	11	10	0	0	0	0	0	0	0	0	0	0	21
Vermont	0	0	9	0	0	0	6	0	0	0	0	0	15
Virginia	0	0	0	0	0	0	0	0	0	0	0	0	0
Washington	8	4	9	0	0	0	0	0	0	0	0	0	21
Washington DC	0	4	0	0	0	0	0	0	0	0	0	0	4
West Virginia	0	7	0	0	0	0	0	0	0	0	0	0	7
Wisconsin	0	0	0	0	0	0	6	0	0	0	0	1	7
Wyoming	0	0	0	0	0	3	0	0	0	0	0	0	3
Number of States with this Problem	10	11	7	11	4	8	17	2	3	3	6	7	N/A

TABLE B.3

PROBLEMS WITH DIAGNOSIS CODING

Characteristic	Incorrect Use of MH Codes	Codes on Too Many Claims or State-Specific Codes	Missing Codes on Non-crossover Claims			Missing Codes on Crossover Claims			Total Problem Points from Diagnosis Quality
			IP	OT	LT	IP	OT	LT	
Problem Points Range (depending on severity/magnitude of problem)	20	4 - 10	6	2 - 10	1 - 2	3 - 6	3 - 6	1	N/A
Alabama	0	0	0	0	0	0	0	0	0
Alaska	0	0	0	0	0	6	3	1	10
Arizona	0	0	0	0	0	0	0	0	0
Arkansas	0	0	0	0	0	0	0	0	0
California	0	0	0	0	0	0	0	1	1
Colorado	0	4	0	0	0	0	0	0	4
Connecticut	0	0	0	0	0	0	0	0	0
Delaware	0	0	0	0	0	0	0	0	0
Florida	0	0	0	10	2	0	6	1	19
Georgia	0	0	0	0	2	0	6	1	9
Hawaii	0	0	0	0	0	0	0	0	0
Idaho	0	0	0	5	0	0	3	0	8
Illinois	0	0	6	0	0	3	0	0	9
Indiana	0	0	0	0	0	0	0	0	0
Iowa	0	0	0	0	2	6	0	1	9
Kansas	0	4	0	0	0	0	0	0	4
Kentucky	0	0	0	0	0	0	6	0	6
Louisiana	0	0	0	0	2	0	0	1	3
Maine	0	0	0	0	0	0	0	0	0
Maryland	0	0	0	0	2	0	0	1	3
Massachusetts	0	0	0	0	2	0	0	1	3
Michigan	20	0	0	0	0	0	0	0	20
Minnesota	0	0	0	0	2	0	0	1	3
Mississippi	0	0	0	0	0	0	6	0	6
Missouri	0	10	0	0	0	0	0	0	10
Montana	0	0	0	0	0	0	0	0	0

Characteristic	Incorrect Use of MH Codes	Codes on Too Many Claims or State-Specific Codes	Missing Codes on Non-crossover Claims			Missing Codes on Crossover Claims			Total Problem Points from Diagnosis Quality
			IP	OT	LT	IP	OT	LT	
Problem Points Range (depending on severity/magnitude of problem)	20	4 - 10	6	2 - 10	1 - 2	3 - 6	3 - 6	1	N/A
Nebraska	0	0	0	0	0	0	6	0	6
Nevada	0	0	0	5	0	0	3	1	9
New Hampshire	0	0	0	10	0	0	6	0	16
New Jersey	0	0	0	0	0	0	0	0	0
New Mexico	0	0	0	0	2	6	6	1	15
New York	0	3	0	0	2	0	0	1	6
North Carolina	0	0	0	0	0	0	0	0	0
North Dakota	0	0	0	0	1	6	0	1	8
Ohio	0	0	0	0	2	0	0	1	3
Oklahoma	0	0	0	0	2	0	0	1	3
Oregon	0	0	0	2	0	0	0	0	2
Pennsylvania	0	0	0	0	0	0	0	0	0
Rhode Island	0	0	0	0	2	0	0	1	3
South Carolina	0	0	0	0	2	0	0	1	3
South Dakota	0	0	0	0	2	6	6	1	15
Tennessee	0	0	0	0	0	0	0	0	0
Texas	0	4	0	0	2	0	0	1	7
Utah	0	0	0	0	0	0	0	0	0
Vermont	0	4	0	0	0	0	0	0	4
Virginia	0	0	0	0	0	0	0	0	0
Washington	0	6	0	0	2	0	0	1	9
Washington DC	0	4	0	0	0	6	6	1	17
West Virginia	0	0	0	0	2	0	0	1	3
Wisconsin	0	4	0	0	0	0	0	0	4
Wyoming	0	0	0	0	2	0	0	1	3
Number of States with this Problem	1	9	1	5	19	7	12	23	N/A

TABLE B.4

OTHER ASPECTS OF CLAIMS DATA QUALITY

	Missing Claims			Problems with Identification of Emergency Room Services			Problems with Days of Inpatient Utilization			
	Inpatient Hospital	Psychiatric Facilities	Other	Procedure Codes	Place of Service	Quantity	Crossover	Non-crossover Inpatient Hospital	Other Unexplained Utilization Anomalies	Total Problem Points from Other Claims Issues
Problem Points Range (depending on severity/magnitude of problem)	7 – 12	10 - 12	2 - 12	3	5	10	2	0	10	N/A
Alabama	0	0	0	0	0	0	2	0	0	2
Alaska	0	0	0	0	0	0	0	0	0	0
Arizona	0	0	0	0	0	0	0	0	0	0
Arkansas	0	0	0	0	0	0	0	0	0	0
California	0	0	7	0	0	0	0	0	0	7
Colorado	0	0	0	0	0	0	2	0	0	2
Connecticut	7	0	3	0	0	0	0	0	0	10
Delaware	0	0	0	0	5	0	2	0	0	7
Florida	0	0	0	0	0	0	0	0	0	0
Georgia	0	0	0	0	0	0	0	0	0	0
Hawaii	12	12	0	0	0	0	0	0	0	24
Idaho	0	0	0	0	0	0	2	0	0	2
Illinois	0	10	0	0	0	0	0	0	0	10
Indiana	0	0	0	0	0	0	2	0	0	2
Iowa	0	0	0	3	5	0	2	0	0	10
Kansas	0	0	0	0	0	0	2	0	0	2
Kentucky	0	0	0	0	0	0	2	0	0	2
Louisiana	0	0	0	0	0	0	2	0	0	2
Maine	0	0	0	0	0	0	2	0	0	2
Maryland	0	0	2	0	0	10	2	0	0	14
Massachusetts	0	0	0	0	0	0	2	0	0	2
Michigan	0	0	0	3	5	0	2	0	10	20
Minnesota	0	0	0	0	0	0	2	0	0	2
Mississippi	0	0	0	0	0	0	2	0	0	2
Missouri	0	0	0	0	0	0	0	0	0	0

	Missing Claims			Problems with Identification of Emergency Room Services			Problems with Days of Inpatient Utilization		Other Unexplained Utilization Anomalies	Total Problem Points from Other Claims Issues
	Inpatient Hospital	Psychiatric Facilities	Other	Procedure Codes	Place of Service	Quantity	Crossover	Non-crossover Inpatient Hospital		
Problem Points Range (depending on severity/magnitude of problem)	7 – 12	10 - 12	2 - 12	3	5	10	2	0	10	N/A
Montana	0	0	2	0	0	0	2	0	10	14
Nebraska	0	0	0	0	0	0	2	0	0	2
Nevada	0	0	0	0	0	0	0	0	0	0
New Hampshire	0	0	0	0	0	0	0	0	0	0
New Jersey	0	10	0	0	0	0	0	0	0	10
New Mexico	0	0	0	0	0	0	2	0	0	2
New York	0	12	0	0	0	10	0	0	0	22
North Carolina	0	0	0	0	0	0	2	0	0	2
North Dakota	0	0	0	0	0	0	2	0	0	2
Ohio	0	0	0	0	0	0	2	0	0	2
Oklahoma	0	0	0	0	0	0	2	0	0	2
Oregon	0	0	2	0	0	0	2	0	0	4
Pennsylvania	0	0	0	0	0	0	2	0	0	2
Rhode Island	0	0	0	0	0	0	0	0	0	0
South Carolina	0	0	0	0	0	0	2	0	0	2
South Dakota	0	0	0	0	0	0	0	0	0	0
Tennessee	0	0	0	0	0	0	0	0	0	0
Texas	0	0	0	0	0	0	2	0	0	2
Utah	0	0	0	0	0	0	0	0	0	0
Vermont	0	0	0	0	0	0	2	0	0	2
Virginia	0	0	8	0	0	0	2	0	0	10
Washington	0	12	12	0	0	0	0	0	0	24
Washington DC	0	0	0	0	0	0	0	0	0	0
West Virginia	0	0	0	0	0	0	0	0	0	0
Wisconsin	0	0	0	0	0	0	2	0	0	2
Wyoming	0	0	0	0	0	0	2	0	0	2
Number of States with this Problem	2	5	7	2	3	2	30	0	2	N/A

TABLE B.5

OUTLIER RATES OF FFS BENEFICIARIES IDENTIFIED IN MH POPULATION

Unexplained Outlier MH Beneficiary Identification Rates	Aged			Disabled			Adult			Child			Total Problem Points from MH Identification Rates
		Problem Points Assigned			Problem Points Assigned			Problem Points Assigned			Problem Points Assigned		
	Actual Rate (%)	Low Outlier	High Outlier	Actual Rate (%)	Low Outlier	High Outlier	Actual Rate (%)	Low Outlier	High Outlier	Actual Rate (%)	Low Outlier	High Outlier	
Problem Points Range (depending on severity/magnitude of problem)		1 - 2	1 - 2		2	1 -3		1 - 2	1 - 2		2 - 3	2 - 3	
Alabama	6	0	0	14	2	0	3	1	0	4	0	0	3
Alaska	7	0	0	34	0	2	11	0	0	8	0	0	2
Arizona (No Data)	0	0	0	0	0	0	0	0	0	0	0	0	0
Arkansas	8	0	0	23	0	0	3	1	0	9	0	0	1
California	4	0	0	23	0	0	2	2	0	4	0	0	2
Colorado	7	0	0	15	2	0	2	2	0	4	0	0	4
Connecticut	7	0	0	29	0	0	3	1	0	3	2	0	3
Delaware	7	0	0	17	0	0	5	0	0	7	0	0	0
Florida	5	0	0	21	0	0	4	0	0	5	0	0	0
Georgia	1	2	0	17	0	0	5	0	0	6	0	0	2
Hawaii	6	0	0	30	0	0	4	0	0	1	3	0	3
Idaho	10	0	0	32	0	0	9	0	0	7	0	0	0
Illinois	10	0	0	26	0	0	7	0	0	6	0	0	0
Indiana	13	0	2	32	0	0	8	0	0	9	0	0	2
Iowa	9	0	0	18	0	0	5	0	0	4	0	0	0
Kansas	11	0	0	30	0	0	9	0	0	10	0	0	0
Kentucky	8	0	0	26	0	0	12	0	0	11	0	0	0
Louisiana	9	0	0	20	0	0	5	0	0	5	0	0	0
Maine	10	0	0	35	0	2	16	0	2	15	0	3	7
Maryland	7	0	0	22	0	0	3	1	0	6	0	0	1
Massachusetts	13	0	2	32	0	0	4	0	0	3	2	0	4
Michigan	17	0	*	20	0	0	3	1	0	3	2	0	3
Minnesota	11	0	0	41	0	3	11	0	0	10	0	0	3
Mississippi	6	0	0	20	0	0	5	0	0	5	0	0	0
Missouri	10	0	0	29	0	0	7	0	0	9	0	0	0

Unexplained Outlier MH Beneficiary Identification Rates	Aged			Disabled			Adult			Child			Total Problem Points from MH Identification Rates
		Problem Points Assigned			Problem Points Assigned			Problem Points Assigned			Problem Points Assigned		
	Actual Rate (%)	Low Outlier	High Outlier	Actual Rate (%)	Low Outlier	High Outlier	Actual Rate (%)	Low Outlier	High Outlier	Actual Rate (%)	Low Outlier	High Outlier	
Problem Points Range (depending on severity/magnitude of problem)		1 - 2	1 - 2		2	1 -3		1 - 2	1 - 2		2 - 3	2 - 3	
Montana	9	0	0	29	0	0	14	0	1	12	0	2	3
Nebraska	12	0	1	31	0	0	8	0	0	8	0	0	1
Nevada	8	0	0	23	0	0	5	0	0	7	0	0	0
New Hampshire	11	0	0	41	0	3	19	0	2	15	0	3	8
New Jersey	6	0	0	26	0	0	7	0	0	6	0	0	0
New Mexico	1	*	0	11	*	0	3	1	0	4	0	0	1
New York	11	0	0	32	0	0	11	0	0	6	0	0	0
North Carolina	9	0	0	24	0	0	7	0	0	7	0	0	0
North Dakota	10	0	0	31	0	0	12	0	0	11	0	0	0
Ohio	13	0	2	33	0	1	10	0	0	8	0	0	3
Oklahoma	13	0	2	25	0	0	6	0	0	7	0	0	2
Oregon	6	0	0	28	0	0	12	0	0	8	0	0	0
Pennsylvania	6	0	0	22	0	0	7	0	0	7	0	0	0
Rhode Island	6	0	0	31	0	0	9	0	0	10	0	0	0
South Carolina	10	0	0	26	0	0	4	0	0	9	0	0	0
South Dakota	3	1	0	19	0	0	8	0	0	9	0	0	1
Tennessee (Invalid Data)	6	0	0	15	0	0	12	0	0	0	0	0	0
Texas	10	0	0	22	0	0	5	0	0	5	0	0	0
Utah	7	0	0	20	0	0	4	0	0	7	0	0	0
Vermont	7	0	0	32	0	0	12	0	0	12	0	2	2
Virginia	10	0	0	27	0	0	8	0	0	8	0	0	0
Washington	7	0	0	24	0	0	4	0	0	2	3	0	3
Washington DC	3	1	0	18	0	0	4	0	0	6	0	0	1
West Virginia	9	0	0	31	0	0	14	0	1	11	0	0	1
Wisconsin	11	0	0	27	0	0	5	0	0	7	0	0	0
Wyoming	9	0	0	25	0	0	11	0	0	10	0	0	0
Number of States with this Problem	N/A	3	5	N/A	2	5	N/A	8	4	N/A	5	4	N/A

* Reason for Outlier Value Already Scored in a Previous Table

TABLE B.6

SUMMING PROBLEM POINTS

States	Total Problem Points from Other Eligibility Issues	Total Problem Points from Diagnosis Quality	Total Problem Points from Other Claims Issues	Total Problem Points from MH Identification Rates	Total Problem Points
Alabama	9	0	2	3	14
Alaska	9	10	0	2	21
Arizona	3	0	0	0	3
Arkansas	4	0	0	1	5
California	15	1	7	2	25
Colorado	14	4	2	4	24
Connecticut	3	0	10	3	16
Delaware	7	0	7	0	14
Florida	19	19	0	0	38
Georgia	35	9	0	2	46
Hawaii	19	0	24	3	46
Idaho	1	8	2	0	11
Illinois	0	9	10	0	19
Indiana	4	0	2	2	8
Iowa	3	9	10	0	22
Kansas	14	4	2	0	20
Kentucky	10	6	2	0	18
Louisiana	8	3	2	0	13
Maine	4	0	2	7	13
Maryland	4	3	14	1	22
Massachusetts	16	3	2	4	25
Michigan	2	20	20	3	45
Minnesota	0	3	2	3	8
Mississippi	20	6	2	0	28
Missouri	8	10	0	0	18
Montana	3	0	14	3	20
Nebraska	7	6	2	1	16
Nevada	0	9	0	0	9
New Hampshire	15	16	0	8	39
New Jersey	8	0	10	0	18
New Mexico	0	15	2	1	18
New York	23	6	22	0	51
North Carolina	2	0	2	0	4
North Dakota	4	8	2	0	14
Ohio	0	3	2	3	8
Oklahoma	12	3	2	2	19
Oregon	2	2	4	0	8
Pennsylvania	10	0	2	0	12
Rhode Island	13	3	0	0	16
South Carolina	4	3	2	0	9

States	Total Problem Points from Other Eligibility Issues	Total Problem Points from Diagnosis Quality	Total Problem Points from Other Claims Issues	Total Problem Points from MH Identification Rates	Total Problem Points
South Dakota	4	15	0	1	20
Tennessee	20	0	0	0	20
Texas	3	7	2	0	12
Utah	21	0	0	0	21
Vermont	15	4	2	2	23
Virginia	0	0	10	0	10
Washington	21	9	24	3	57
Washington DC	4	17	0	1	22
West Virginia	7	3	0	1	11
Wisconsin	7	4	2	0	13
Wyoming	3	3	2	0	8

TABLE B.7

ASSIGNMENT OF FINAL DATA QUALITY SCORE

States In Order from Best to Worst Data Quality	Percent Managed Care Penetration	Total Problem Points	Sum of Managed Care Penetration Percent and Problem Points	Final Data Quality Score from 4 (best) to 1 (worst)
Arkansas	0	5	5	4
North Carolina	3	4	7	4
Wyoming	0	8	8	4
Idaho	0	11	11	4
South Carolina	2	9	11	4
Louisiana	0	13	13	4
Maine	2	13	15	4
North Dakota	1	14	15	4
Indiana	10	8	18	3.5
West Virginia	7	11	18	3.5
Ohio	11	8	19	3.5
Texas	7	12	19	3.5
South Dakota	0	20	20	3.5
Alaska	0	21	21	3.5
Montana	1	20	21	3.5
Virginia	12	10	22	3
Illinois	7	19	26	3
Kansas	7	20	27	3
Mississippi	0	28	28	3
Missouri	13	18	31	3
Nevada	23	9	32	3
Oklahoma	17	19	36	3
Wisconsin	27	13	40	3
New Hampshire	2	39	41	3
Georgia	1	46	47	2.5
Alabama	35	14	49	2.5
Florida	13	38	51	2.5
Vermont	28	23	51	2.5
Minnesota	44	8	52	2.5
New Jersey	36	18	54	2.5
Pennsylvania	43	12	55	2.5
California	32	25	57	2.5
Nebraska	42	16	58	2.5
Washington DC	37	22	59	2
New Mexico	42	18	60	2
Rhode Island	46	16	62	2
Oregon	55	8	63	2
Maryland	42	22	64	2
Connecticut	52	16	68	2
New York	17	51	68	2
Delaware	56	14	70	2

States In Order from Best to Worst Data Quality	Percent Managed Care Penetration	Total Problem Points	Sum of Managed Care Penetration Percent and Problem Points	Final Data Quality Score from 4 (best) to 1 (worst)
Colorado	54	24	78	2
Kentucky	60	18	78	2
Massachusetts	58	25	83	2
Washington	29	57	86	1.5
Michigan	46	45	91	1.5
Iowa	71	22	93	1.5
Hawaii	53	46	99	1.5
Arizona	100	3	103	1
Utah	82	21	103	1
Tennessee	99	20	119	1
All States	28	N/A	N/A	N/A

Note: Low managed care penetration and low numbers of problem points yield a higher quality and completeness score